We claim

1. An anionically polymerized impact-modified polystyrene which has a melt volume flow ratio MVR of at least 8 $cm^3/10$ min, measured to EN ISO 1133 at a test temperature of 200°C with a nominal load of 5 kg.

2. An impact-modified polystyrene as claimed in claim 1, which has an MVR in the range from 8 to 20 $cm^3/10$ min.

3. An impact-modified polystyrene as claimed in claim 1 or 2, a test specimen produced from which at a melt temperature of 240°C has a 20° reflectometer gloss value of at least 25%, measured to DIN 67530.

4. An impact-modified polystyrene as claimed in any of claims 1 to 3, a test specimen produced from which to EN ISO 3167 has a Charpy notched impact strength of at least 8 kJ/m^2, measured to EN ISO 179/1eA with a milled notch at 23°C.

5. A thermoplastic molding composition comprising

   a) from 50 to 99.9% by weight of an anionically polymerized impact-modified polystyrene as claimed in any of claims 1 to 4,
   and

   b) from 0.1 to 50% by weight of a rubber-free or impact-modified polystyrene polymerized by an anionic or free-radical route and having a number-average molar mass of not more than 20 000 g/mol, determined by gel permeation chromatography in tetrahydrofuran.

6. A process for preparing impact-modifed polystyrene as claimed in any of claims 1 to 4 by anionic polymerization of styrene in the presence of a styrene-butadiene block copolymer, where use is made of an organyl alkali metal compound as anionic polymerization initiator, and of an organyl aluminum compound, organyl magnesium compound, or organyl zinc compound as retarder.

7. A process as claimed in claim 6, where sec-butyllithium is used as anionic polymerization initiator.

8. A process as claimed in claim 6 or 7, where triisobutylaluminum (TIBA) is used as retarder.

9. A process as claimed in any of claims 6 to 8, where the anionic polymerization is undertaken in the presence of an initiator composition which is obtainable by mixing sec-butyllithium and styrene, and then adding TIBA.

10. An initiator composition for anionic polymerization, obtainable by mixing sec-butyllithium and styrene and then adding TIBA.

11. The use of an initiator composition as claimed in claim 10 for preparing impact-modified polystyrene by anionic polymerization.

12. The use of the impact-modified polystyrene as claimed in any of claims 1 to 4, or of the thermoplastic molding compositions as claimed in claim 5, for producing moldings, films, fibers, or foams.

13. A molding, a film, a fiber, or a foam made from the impact-modified polystyrene as claimed in any of claims 1 to 4, or from the thermoplastic molding compositions as claimed in claim 5.

Anionically polymerized impact polystyrene having good flowability

Abstract

Anionically polymerized, impact-modified polystyrene which has a melt volume flow ratio MVR of at least 8 $cm^3/10$ min, measured to EN ISO 1133 at a test temperature of 200°C with a nominal load of 5 kg.